UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/337,584	06/21/1999	ARTHUR M. KRIEG	C1039/7020-H	9169

7590 06/28/2005

HELEN C LOCKHART
WOLF GREENFIELD & SACKS PC
600 ATLANTIC AVENUE
BOSTON, MA 02210

EXAMINER	
MINNIFIELD, NITA M	

ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/337,584	KRIEG ET AL.	
	Examiner	Art Unit	
	N. M. Minnifield	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *42-47,49-53,56,57,82-85,90,92,94,96,98,100,102 and 103* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42-47,49-53,56,57,82-85,90,92,94,96,98,100,102 and 103* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/11/05*. 16 pages
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *2/9/05*.
5) ☒ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicants' response filed April 14, 2005 is acknowledged and has been entered. Claims 42-47, 49-53, 56, 57, 82-85, 90, 92, 94, 96, 98, 100, 102 and 103 are now pending in the present application. All rejections have been withdrawn in view of Applicants' amendment to the claims and/or comments, with the exception of those discussed below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. It is noted that the three Information Disclosure Statements (total of 16 pages) filed April 11, 2005 have been considered and signed. The six page IDS filed April 11, 2005 is duplicative of the references cited on the eight page IDS filed August 27, 2004 (also filed on April 11, 2005). The six page IDS has been signed and marked as "DUPLICATE".

4. Claims 42-47, 49-53, 56, 57, 82-85, 90, 92, 94, 96, 98, 100, 102 and 103 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for treating asthma in a subject, murine model, comprising administering to an asthmatic subject an immunostimulatory nucleic acid (CpG, specifically SEQ ID NO: 10), does not reasonably provide enablement for a method for treating asthma in a subject, animal or human, comprising

administering to an asthmatic subject an immunostimulatory nucleic acid (CpG, the scope of the myriad possible immunostimulatory nucleic acids encompassed by the formulas as set forth in claims 42, 49, 90, 92, 94 and 96 for example) and the CpG sequences defined by SEQ ID NO: 3, 7, 12, 38 or 57. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The claims are directed to a method for treating asthma in a subject comprising administering to an asthmatic subject in need of such treatment a composition comprising a CpG oligonucleotide (8-100 or 8-40 nucleotides long). The CpG oligonucleotide formulas are 5'X_1 X_2CGX_3X_4 3'. The claims, for example, define that X_1, X_2, X_3, and X_4 are any nucleotide. The claims define that the nucleic acid phosphate backbone has been modified. The routes of administration and delivery formulations have been defined as well as specific CpG sequences, SEQ ID NO: 3, 7, 10, 12, 38 and 57.

The specification discloses Example 12 (see pp. 63-64), prevention of the development of an inflammatory cellular infiltrate and eosinophilia in a murine model of asthma. Mice were immunized with *Schistosoma mansoni* eggs (SEA) by i.p. injection on days 0 and 7. SEQ ID NO: 10 was administered to the immunized mice and soluble SEA was administered by intranasal instillation on days 14 and 21. After challenge the mice were sacrificed and cytokine levels and other assays conducted on the lavage fluids. The specification indicates that Figures 9-15 show that CpG/SEA induced inflammatory cells, eosinophils, to be present and generated macrophages; higher IL-12 was induced, IL-4 was reduced and IFN-gamma production increased. Applicants assert that the CpG redirected

the cytokine response of the lung to production of IL-12 and IFN-gamma, indicating a Th1 type immune response (p. 65).

The specification does not teach that any of the other myriad of possibilities of CpG having the claimed SEQ ID NOs or the claimed formulas can be used to treat an asthmatic subject, animal or human. The method of Example 12 teaches that CpG and the SEA were administered to the asthmatic subject at the same time. It is not clear from the example shown if the CpG administered alone to an asthmatic will redirect the cytokine responses and therefore Th1 type immune responses. The pending claims only recite that CpG is administered. It is not clear that the other claimed CpG sequences are sufficient to treat an asthmatic subject. The specification teaches *in vitro* methods and *in vivo* methods using SEQ ID NO: 10 in a murine model for asthma. It is not clear from the specification that the scope of the claimed invention is enabled.

The state of the art is unpredictable with regard to asthma treatments using CpG. CpG containing oligonucleotides are currently being investigated for exerting their immunotherapeutic effects in various organisms. Biological responses to the administration of CpG containing oligonucleotides vary, however, depending on the mode of administration and the organism (see McCluskie et al Molecular Med., 1999, 5/5:287-300 in its entirety, and especially on p. 296; see Krieg et al, Immunology Today, 2000, 21/10:521-526, especially p. 524). Wohlleben et al 2001 (TRENDS in Immunology, 2001, 22/11:618-626) have studied the effects of CpG on atopic disorders such as allergic asthma. CpG-ODNs have multiple stimulatory effects on lymphocytes, including DCs, macrophages, B cells, natural killer (NK) cells and T cells (p. 619). The state of the art questions whether "CpG-ODNs can be used in humans to inhibit the development of asthma?

In vitro experiments have shown clearly that human cells react to CpG-DNA in a similar manner to lymphocytes from rodents.... The results obtained from animal models suggest that it is probable that these approaches might also be successful in humans to reduce the development of atopic disorders. However, treatments using CpG-ODNs rely both on innate and adaptive pro-inflammatory Th1 immune responses to inhibit Th2 responses. For this reason, harmful side-effects of the treatment need to be ruled out. Besides potential problem of inducing strong inflammatory responses at the site of exposure to allergen, the use of CpG-DNA could also have other serious side-effects. It has been reported that the application of CpG-ODNs can cause septic shock in mice. A further potential problem might be the development of autoimmune disease after application of CpG-DNA. Residual autoreactive T cells might become sufficiently activated to cause disease after encountering APCs that have been unspecifically activated by CpG-DNA." (p. 620, col. 2) Wohlleben et al teaches that all approaches that induce Th1 responses have the potential side-effects of Th1-cell-mediated inflammation, potentially causing serious tissue damage (p. 624, col. 1). Kline et al 2002 (Am. J. Physiol. Lung Cell Mol. Physiol., 2002, 283:L170-L179; Kline et al, J. Immunol., 1998, 160:2555-2559) teaches that a single treatment of CpG-ODN alone was ineffective in reducing the manifestations consistent with asthma in this animal model (p. L172, col. 2; see also p. L178, paragraph bridging cols. 1-2). Kline et al 2002 teaches that splenocytes from OVA-treated mice did not develop an antigen-specific Th1 phenotype. However, mice treated with CpG ODN and OVA had a marked shift toward a Th1 response to antigen as well as reduction in airway eosinophilia, serum IgE and bronchial hyperreactivity (p. L176, col. 2).

Weiner (J. Leucocyte Biology, 2000, 68:456-463) states furthermore that the molecular mechanisms of CpG oligonucleotides' immunostimulatory effects are not yet understood (see p. 461). And while the biological effects of some chemical modifications have been studied for CpG containing oligonucleotides, such as 2'-O-methyl modifications, phosphorothioate internucleotide linkages and 5-methyl cytosine substitutions, the incorporation and positioning of chemical modifications relative to the CpG dinucleotide are highly unpredictable (see Agrawal et al Molecular Med. Today, 2000, 6:72-81, especially on pp. 78-80).

Further, Satoh et al (Fukushima Igaku Zasshi, 2002, 52/3:237-250, abstract only) teaches that CpG-ODN is responsible for worsening of allergic contact dermatitis. "S.c. applied CpG ODN one day before sensitization of naïve mice significantly enhanced the ACD to DNFB which showed severe edema with massive CD8+ T cell infiltration." (abstract) Satoh et al also teaches that "[T]hese results indicate that CpG ODN vaccinations may elicit and aggravate side effects such as harmful CD8+ T cell-mediated type IV hypersensitivity responses." (abstract) Dziadzio et al (Handbook of Experimental Pharmacology, 2004, 161(Pharmacology and Therapeutics of Asthma and COPD):273-285, abstract only) teaches that "[V]arious combinations of plasmid DNA, immunostimulatory oligonucleotide (ISS-ODN), and proteins have been studied in murine models to evaluate the effectiveness of DNA vaccination. The success in skewing the immune response towards a Th1 phenotype in mice still needs to be evaluated in humans. The use of DNA vaccination as a treatment for allergic disease remains a viable option for the future." (abstract) The state of the art, taken as a whole, is still unpredictable with regard to the use of ISS-ODN in treating asthma in an asthmatic subject (human or otherwise) in need of such treatment.

The amount of direction or guidance presented in the specification and the presence or absence of working examples is a hindrance to practicing the claimed invention. Applicants have not provided guidance in the specification toward a method for treating asthma comprising the administration of any immuno-stimulatory nucleic acid comprising the formula set forth in claim 42, for example. As previously stated the specification teaches an increase in immunomodulation in mice (and comprising conversion from a Th2 to a Thl immune response), and treatment of asthma in a mouse model comprising the administration of SEQ ID NO: 10 and antigen (SEA). One skilled in the art would not accept on its face the examples given in the specification as being correlative or representative of the successful treatment of asthma in any organism comprising the administration by any route of any immunostimulatory nucleic acid comprising the formula in the claims in view of the lack of guidance in the specification and known unpredictability associated with the ability to predict the biological effects exerted by CpG containing oligonucleotides in any and/or all organisms/subjects. The specification as filed fails to provide particular guidance which resolves the known unpredictability in the art associated with effects provided *in vivo* in any and/or all organisms upon administration via any route of CpG containing oligonucleotides, and further whereby treatment effects are provided in any and/or all organism for asthma. The breadth of the claims is very broad and the quantity of experimentation required is undue. The quantity of experimentation required to practice the invention as claimed would require the de novo determination of accessible target sites, modes of delivery and formulations of the CpG to target appropriate cells and/or tissues in any and/or all organisms/subjects, and further

whereby treatment effects are provided for the claimed conditions. Since the specification fails to provide particular guidance for the treatment of asthma comprising administration by any route of any CpG containing oligonucleotide (claimed formulas), and since determination of these factors for a particular CpG containing oligonucleotide and for the particularly claimed conditions, route of administration and organism is highly unpredictable, it would require undue experimentation to practice the invention over the broad scope as presently claimed.

The examples provided of the induction of various interleukins in spleen, liver or thymus cells are not representative of the successful treatment of asthma using any CpG containing oligonucleotide. No correlation is taught in the instant disclosure between the ability of these CpG containing oligonucleotides to induce a Th1 response in vitro (e.g. amount of IL-6 induction) and their ability to treat asthma *in vivo*. An assumed common mechanism of action does not ensure enablement for treatment. Effective delivery to appropriate and concentration of a particular CpG containing oligonucleotide necessary for providing treatment for asthma for a particular CpG containing sequence are still highly unpredictable. The success of treating asthma with SEQ ID NO: 10 is not necessarily representative or correlative of the ability to successfully treat asthma with any of the generic sequences claimed and the myriad possibilities of CpG sequences encompassed by the claims. The *in vivo* treatment success for these generic sequences require undue experimentation beyond that provided in the instant disclosure.

The rejection is maintained for the reasons of record. Applicant's arguments filed April 14, 2005 have been fully considered but they are not persuasive. Applicants have asserted that the specification describes a class of molecules (oligonucleotides) having a common structural motif, CpG dinucleotide, that when administered to a subject results in the immune response being altered, with a Th1 response being favored. The specification describes this as well as presents data, in vivo and in vitro, using a number of different CpG containing oligonucleotides (see Table 5). The Examiner appreciates Applicants pointing out specific descriptions and data; however, does the in vivo data from one CpG molecule, SEQ ID NO: 10, indicate that all other CpG molecules will function in the same manner (i.e. increase the Th1 response)? It appears that not all CpG molecules increase the Th1 response. Does SEQ ID NO: 35 increase the Th1 response? What is the minimum level of cytokine (IFN-gamma and IL-12) increase necessary to indicate that a Th1 response has occurred?

Applicants have asserted that in addition to the working examples a number of studies published since the filing of the patent application have reiterated, as set forth in the specification, that CpG oligonucleotides having different structures but maintaining the critical CpG motif result in an altered immune response (see US Patent Application SN 10/644052 corresponding to PCT Publication No WO2004/016805 and Hemmi et al, 2002). However, these publications are after Applicants' filing date of October 30, 1996. Applicants' specification and claims should be enabled at the time of filing.

Applicants have asserted that the CpG containing molecules can be used in a method for treating asthma comprising administering the CpG alone and that the specification includes 14 tables of data in addition to the 15 figures of data, in vitro

or in vivo, without the concurrent use or administration of an antigen. It is not clear to the Examiner which tables and figures show in vivo enablement for asthma using CpG other than SEQ ID NO: 10. Please note that the rejection is a 112, first paragraph rejection with regard to scope of enablement, not a total lack of enablement. Further, as previously stated, the state of the art indicates that not all CpG containing molecules work on all organisms (see McCluskie et al 1999).

Applicants have asserted that the specification teaches methods for treating asthma in terms of the administration of CpG as a therapeutic. The immune profile, which is consistent with the promotion of a Th1 favored response, is important in asthma. Applicants have indicated that Tables 5 and 13 provide data that show CpG alone (without antigen/allergen) produced a Th1 biased cytokine induction. A review of Table 13 shows that CpG is not a consistent inducer of cytokines, which have the ability to induce a Th1 response. There was induction of IL-12 for the CpG molecules tested in the first experiment, however only one CpG molecule induced IL-12 in the second experiment. The CpG molecules do not appear to be consistent in their function.

It is noted that Applicants have provided several references (Lukacs et al, 1994, 1996, and Padrid, et al 1998) that indicate that there is a murine animal model for asthma. Airway inflammation is induced by administering schistosome egg antigen (SEA) in vivo to the animal as a model of asthma. The SEA induces a Th2 response in mice and elicits an inflammatory reaction in lungs. Applicants have asserted that this model was used in Example 12 of the specification, and that the use of CpG oligonucleotides alone is useful as a therapy for asthma. However, it is noted that only CpG, SEQ ID NO: 10, was administered to mice, not the full

scope of any of the myriad CpG containing molecules that are envisioned in the specification.

Applicants have asserted that 10/644052 demonstrates that CpG administered alone is effective in treating the asthmatic response (see Examples 22, 25 and 26, for example). However, as previously noted 10/644052 is evidence of enablement post filing; the specification must be enabled at the time of filing, particularly in view of the state of the art regarding the claimed invention. Further, were the experimental protocols set forth in 10/644052, specifically Examples 22, 25 and 26, the same manner as the experimental protocols of the pending application?

Applicants have asserted that several Phase I and II studies have been performed in humans to date. In particular subcutaneous administration, like that in the Satoh reference, has been performed in humans for a cancer trial. However, the pending claims are directed to treatments for asthma and allergies, not cancer.

Further, Van Uden et al (J. Allergy Clin. Immnol., 1999, 104:902-910) teaches that although "ISS are generally considered by researchers in this field to be modular 6-mer units, it has been difficult to determine the minimum stimulatory motif length. One study showed that a minimum length of 18 bases was required but that a length of 22 bases gave greater activity. Another study demonstrated good activity with a 15-mer ODN. Still another study used cationic lipid transfection to show a stimulatory effect with a 6-mer ODN." (p. 904, col. 1) Van Uden et al teaches that each ISS appears to have a different minimum length because crucial flanking bases would be variably distant from the core (p. 904, col. 2). Van Uden et al indicates that the ISS *may be a promising* method of treatment/prophylaxis for allergic disease, but that there are also some potential

side effects that must be considered. The "immune system is delicately balanced between immunity and tolerance, between Th1 and Th2, and between inflammation and unresponsiveness. There is always the possibility of unwanted effects of the powerful immune stimulation that ISS delivers." (p. 907, col. 2) LPS is similar to ISS, in view of this some of the same problems observed with LPS are potential problems with ISS (p. 907, col. 2). ISS could cause excessive local inflammation as seen with other powerful Th1 adjuvants, such as CFA (p. 908, col. 1).

Finally, it should be noted that whether the specification would have been enabling as of the filing date involves consideration of the nature of the invention, the state of the prior art, and the level of skill in the art. The initial inquiry is into the nature of the invention, i.e., the subject matter to which the claimed invention pertains. The nature of the invention becomes the backdrop to determine the state of the art and the level of skill possessed by one skilled in the art.

The state of the prior art is what one skilled in the art would have known, at the time the application was filed, about the subject matter to which the claimed invention pertains. The relative skill of those in the art refers to the skill of those in the art in relation to the subject matter to which the claimed invention pertains at the time the application was filed. See MPEP § 2164.05(b).

The state of the prior art provides evidence for the degree of predictability in the art and is related to the amount of direction or guidance needed in the specification as filed to meet the enablement requirement. The state of the prior art is also related to the need for working examples in the specification.

The state of the art for a given technology is not static in time. It is entirely possible that a disclosure filed on January 2, 1990, would not have been enabled.

However, if the same disclosure had been filed on January 2, 1996, it might have enabled the claims. Therefore, the state of the prior art must be evaluated for each application based on its filing date.

35 U.S.C. 112 requires the specification to be enabling only to a person "skilled in the art to which it pertains, or with which it is most nearly connected." In general, the pertinent art should be defined in terms of the problem to be solved rather than in terms of the technology area, industry, trade, etc. for which the invention is used.

The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public. In re Buchner, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984).

The state of the art existing at the filing date of the application is used to determine whether a particular disclosure is enabling as of the filing date. > Chiron Corp. v. Genentech Inc., 363 F.3d 1247, 1254, 70 USPQ2d 1321, 1325-26 (Fed. Cir. 2004) ("a patent document cannot enable technology that arises after the date of application").< Publications dated after the filing date providing information publicly first disclosed after the filing date generally cannot be used to show what was known at the time of filing. In re Gunn, 537 F.2d 1123, 1128, 190 USPQ 402,405-06 (CCPA 1976); In re Budnick, 537 F.2d 535, 538, 190 USPQ 422, 424 (CCPA 1976) (In general, if an applicant seeks to use a patent to prove the state of the art for the purpose of the enablement requirement, the patent must have an

issue date earlier than the effective filing date of the application.). While a later dated publication cannot supplement an insufficient disclosure in a prior dated application to make it enabling, applicant can offer the testimony of an expert based on the publication as evidence of the level of skill in the art at the time the application was filed. Gould v. Quigg, 822 F.2d 1074, 1077, 3 USPQ2d 1302, 1304 (Fed. Cir. 1987).

In general, the examiner should not use post-filing date references to demonstrate that the patent is non-enabling. Exceptions to this rule could occur if a later-dated reference provides evidence of what one skilled in the art would have known on or before the effective filing date of the patent application. In re Hogan, 559 F.2d 595, 605, 194 USPQ 527, 537 (CCPA 1977). If individuals of skill in the art state that a particular invention is not possible years after the filing date, that would be evidence that the disclosed invention was not possible at the time of filing and should be considered. In In re Wright, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513-14 (Fed. Cir. 1993) an article published 5 years after the filing date of the application adequately supported the examiner's position that the physiological activity of certain viruses was sufficiently unpredictable so that a person skilled in the art would not have believed that the success with one virus and one animal could be extrapolated successfully to all viruses with all living organisms. Claims not directed to the specific virus and the specific animal were held nonenabled.

5. No claims are allowed.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. M. Minnifield whose telephone number is 571-272-0860. The examiner can normally be reached on M-F (8:00-5:30) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette R.F. Smith can be reached on 571-272-0864. The fax phone number for the organization where this application or proceeding is assigned is 571.-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

N. M. Minnifield
Primary Examiner
Art Unit 1645

NMM
June 22, 2005